QUIZZES

Practice test 1 Unit 5

10 Questions

7 min

Topics

First law of thermodynamics, Isothermal process, Adiabatic process, Isobaric process and Isochoric process

Start Quiz

06 : 58

Q 1/10 7 min Hint

Q : The rapid expansion and compression of air through which a sound wave is passing, obeys

A Isothermal process

B Isochoric process

C Adiabatic process

D Isobaric process

06 : 56

Q 2/10 7 min Hint

Q : In isothermal process which of the following is not true

A temperature remains constant

B Internal energy does not change

C no heat enters or leaves the system

D none

06 : 54

Q 3/10 7 min Hint

Q : First law of thermodynamics for an adiabatic process is

A $W = -\Delta U$

B $Q = \Delta U + W$

C Q =W

D $Q = \Delta U$

06 : 53

Q 4/10 7 min Hint

Q : Four curves A, B, C and D are drawn in the adjoining figure for a given amount of gas. The curves which represent adiabatic and isothermal changes are

A C and D respectively

B D and C respectively

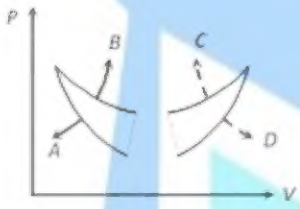
C A and B respectively

D B and A respectively

06 : 48

Q 4/10 7 min Hint

Q : Four curves A, B, C and D are drawn in the adjoining figure for a given amount of gas. The curves which represent adiabatic and isothermal changes are



A C and D respectively

B D and C respectively

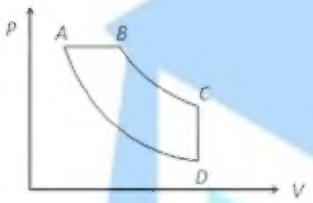
C A and B respectively

D B and A respectively

06 : 44

Q 5/10 7 min Hint

Q : In pressure-volume diagram given below, the isochoric, isothermal, and isobaric parts respectively, are



A BA, AD, DC

B DC, CB, BA

C AB, BC, CD

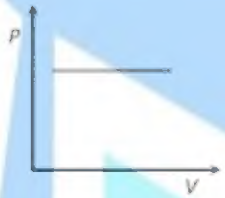
D CD, DA, AB

06 : 42

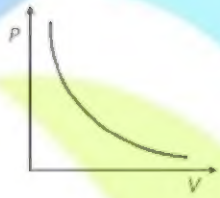
Q 6/10 7 min Hint

Q : Which of the accompanying PV, diagrams best represents an isothermal process

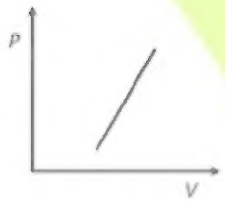
A



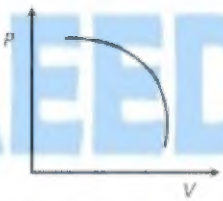
B



C



D



06 : 40

Q 7/10 7 min Hint

Q : Heat given to a system is 35 joules and work done by the system is 15 joules. The change in the internal energy of the system will be

A - 50 J

B 20 J

C 30 J

D 50 J

06 : 37

Q 8/10 7 min Hint

Q : When the amount of work done is 333 cal and change in internal energy is 167 cal, then the heat supplied is

A 166 cal

B 333 cal

C 500 cal

D 400 cal

Q : A perfect gas contained in a cylinder is kept in vacuum. If the cylinder suddenly bursts, then the temperature of the gas

A Remains constant

B Becomes zero

C Increases

D Decreases

10/10 7 min Hint

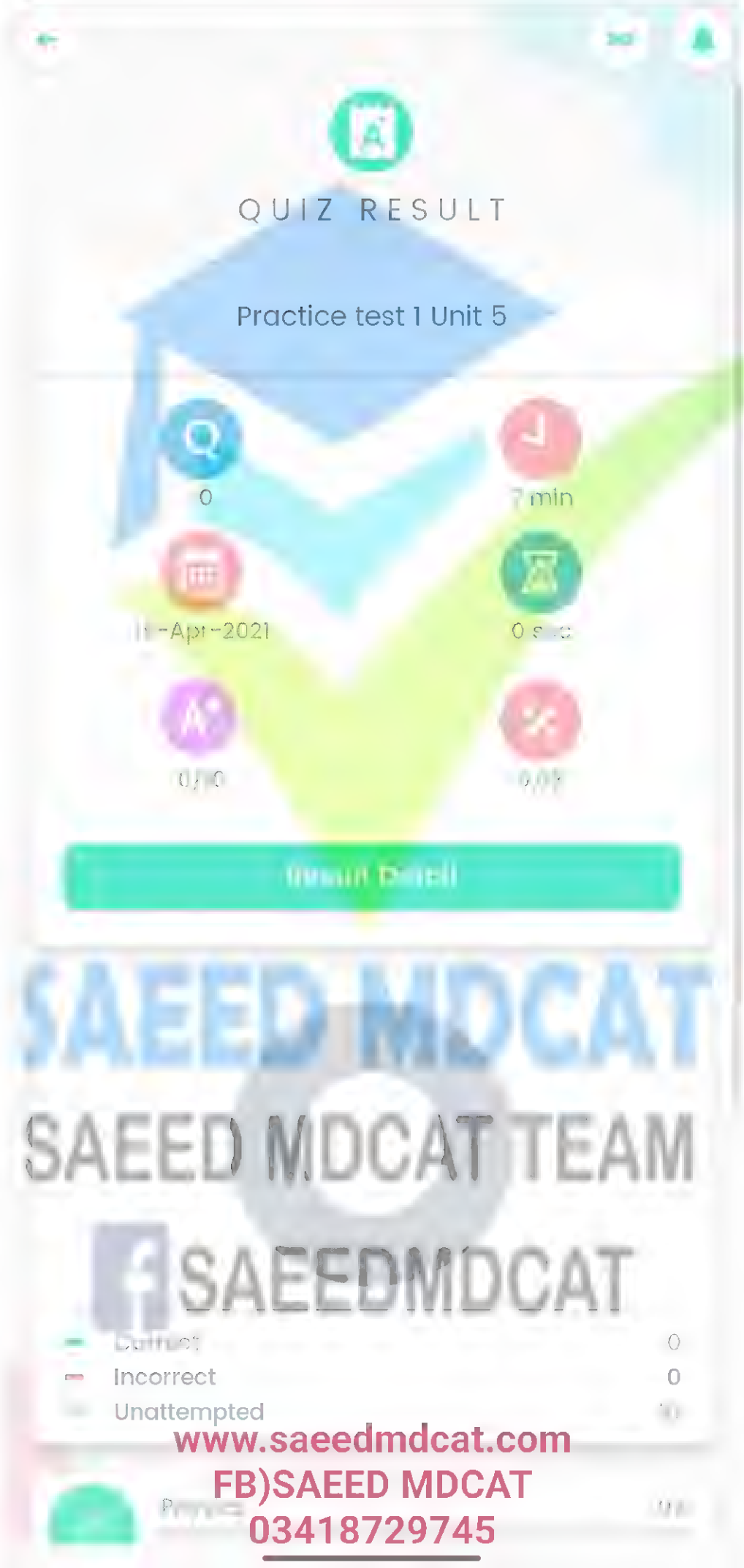
Q : If heat given to a system is 6 kcal and work done is 6 kJ. Then change in internal energy is

A 19.1 kJ

B 12.5 kJ

C 25 kJ

D Zero



Practice test 1 Unit 5

Correct Unattempted

Incorrect 1/10

Q : The rapid expansion and compression of air through which a sound wave is passing, obeys

Isothermal process

Isochoric process

Adiabatic process

Isobaric process

Explanation

According to LAPLACE it is proved that sound travel adiabatically.

Practice test 1 Unit 5

Correct | Unattempted

Incorrect | 2/10

Q : In isothermal process which of the following is not true

A temperature remains constant

B Internal energy does not change

C no heat enters or leaves the system

D none

Explanation

During isothermal process heat enter or leave system to do work.

← Practice test 1 Unit 5

Correct | Unattempted

Incorrect | 3/10

Q : First law of thermodynamics for an adiabatic process is

A. $W = -\Delta U$

B. $Q = \Delta U + W$

C. $Q = W$

D. $Q = \Delta U$

Explanation

$Q = \Delta U + W$

For adiabatic process

$Q = 0$

$W = -\Delta U$

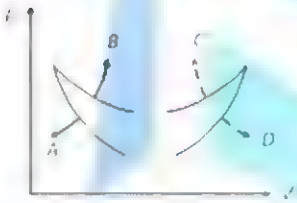
Correct

Unattempted

Incorrect

4/9

Q : Four curves A, B, C and D are drawn in the adjoining figure for a given amount of gas. The curves which represent adiabatic and isothermal changes are



A C and D respectively

B D and C respectively

C A and B respectively

D B and A respectively

Explanation

As we know that slope of isothermal and adiabatic curves are always negative and slope of adiabatic curve is always greater than that of isothermal curve Hence in the given graph curve A and B represents adiabatic and isothermal changes respectively.

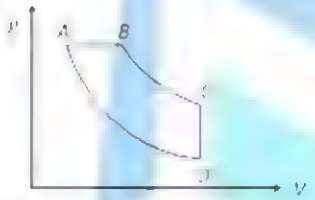
Correct

Unattempted

Incorrect

5/10

Q : In pressure-volume diagram given below, the isochoric, isothermal, and isobaric parts respectively, are



A BA, AD, DC

B DC, CB, BA

C AB, BC, CD

D CD, DA, AB

Explanation

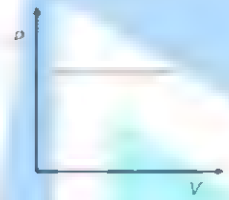
Process CD is isochoric as volume is constant, Process DA is isothermal as temperature constant and Process AB is isobaric as pressure is constant.

Incorrect

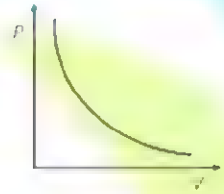
0 pts

Q : Which of the accompanying PV, diagrams best represents an isothermal process

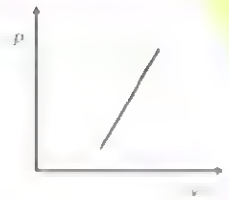
A



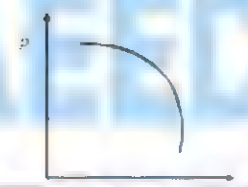
B



C



D



Explanation

In isothermal process

$P \propto 1/V$.

Hence graph between P and V is a hyperbola.

Practice test 1 Unit 5

Correct Unattempted

Incorrect 7/10

Q : Heat given to a system is 35 joules and work done by the system is 15 joules. The change in the internal energy of the system will be

A - 50 J

B 20 J

C 30 J

D 50 J

Explanation

$\Delta U = \Delta Q - W = 35 - 15 = 20$ J

Practice test 1 Unit 5

Correct

Unattempted

Incorrect

8/10

Q : When the amount of work done is 333 cal and change in internal energy is 167 cal, then the heat supplied is

166 cal

333 cal

500 cal

400 cal

Explanation

$\Delta Q=\Delta U+\Delta W=167+333=500$ cal

Practice test 1 Unit 5

Correct

Unattempted

Incorrect

9/10

Q : A perfect gas contained in a cylinder is kept in vacuum. If the cylinder suddenly bursts, then the temperature of the gas

A Remains constant

B Becomes zero

C Increases

D Decreases

Explanation

During free expansion of a perfect gas no, work is done and also no heat is supplied from outside. Therefore, no change in internal energy. Hence, temperature remain constant.

Practice test 1 Unit 5

Correct

Unattempted

Incorrect

10/10

Q : If heat given to a system is 6 kcal and work done is 6 kJ. Then change in internal energy is

A 19.1 kJ

B 12.5 kJ

C 25 kJ

D Zero

Explanation

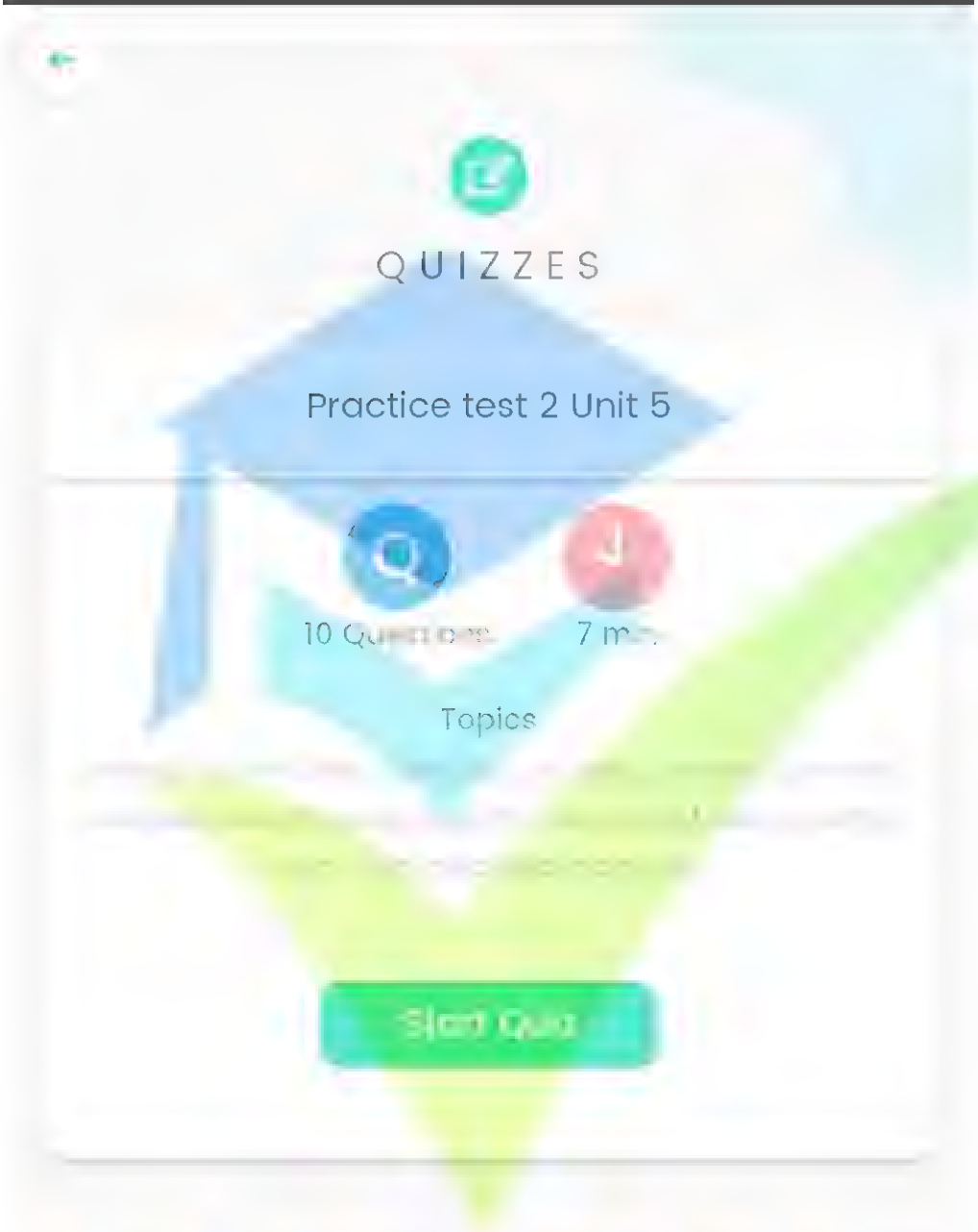
$\Delta Q=\Delta U+\Delta W$

Þ

$\Delta U=\Delta Q-\Delta W$

$=6\times4.18-6=19.08kJ$

$\approx19.1kJ$



Q : The amount of heat required to raise the temperature of one kg of substance through 1K is called:

- Specific Heat
- Molar Heat Capacity
- Heat of fusion
- Latent heat of fusion

2/10 7 min Next

Q : For 1 mole of gas the relation $P\Delta V$ =

A $R\Delta T$

B $R\Delta V$

C $R\Delta P$

D $P\Delta T$

1 2 3 4 5 6 7 8 9

3/10

Q : A gas, for which γ is 4/3, is heated at constant pressure. The percentage of heat supplied used for external work is

A 25%

B 75%

C 60%

D 40%

4/10 7 min Hint

Q : The difference between the molar specific heat at constant pressure and volume is called

A molar gas constant

B universal gas constant

C pressure constant

D Boltzman constant

5/16 7 Mbps Next

Q : For mono-atomic gas $C_v = \frac{3R}{2}$, therefore γ for this gas is

A $\frac{3}{2}$

B $\frac{3}{5}$

C $\frac{5}{3}$

D $\frac{3}{4}$

Q : The unit of molar specific heat is same as that of

A Molar ideal gas constant

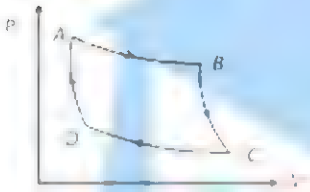
B Temperature

C Pressure

D Heat

7/10 7 min Hint

Q : The P-V graph of an ideal gas cycle is shown here as below. The adiabatic process is described by



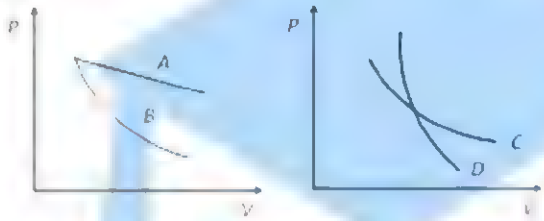
A AB and BC

B AB and CD

C BC and DA

D BC and CD

Q : n the following figure, four curves A, B, C and D are shown. The curves are



Isothermal for A and D while adiabatic for B and C

Adiabatic for A and C while isothermal for B and D

Isothermal for A and B while adiabatic for C and D

Isothermal for A and C while adiabatic for B and D

Q :

The specific heats at constant pressure is greater than that of the same gas at constant volume because

A at constant pressure work is done in expanding the gas

B at constant volume work is done in expanding the gas

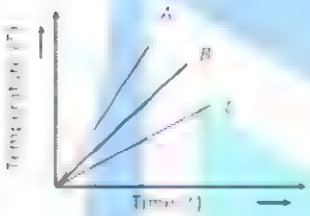
C the molecular attraction increases more at constant pressure

D the molecular vibration increases more at constant pressure

10/10 7 min Hint

Q :

Which of the substances A, B or C has the highest specific heat ? The temperature vs time graph is shown



A

B

C

All have equal specific heat

Practice test 2 Unit 5

Correct

Unattempted

Incorrect

1/10

Q : The amount of heat required to raise the temperature of one kg of substance through 1K is called:

A Specific Heat

B Molar Heat Capacity

C Heat of fusion

D Latent heat of fusion

Explanation

Specific heat is defined as amount of heat required to raise temperature of 1 kg mass by 1K.

Correct

Unattempted

Incorrect

2/10

Q : For 1 mole of gas the relation $P\Delta V$ =

A. $R\Delta T$

B. $R\Delta V$

C. $R\Delta P$

D. $P\Delta T$

Explanation

As $W = P\Delta V$ ____ (i) also $P\Delta V = nR\Delta T$ $\therefore n = 1$

$P\Delta V = R\Delta T$ ____ (ii)

So, by comparing (i) and (ii)

$W = R\Delta T = P\Delta V$

Correct

Unattempted

Incorrect

3|10

Q : A gas, for which γ is 4/3, is heated at constant pressure. The percentage of heat supplied used for external work is

25%

75%

60%

40%

Explanation

$\Delta W = nR\Delta T, \quad \Delta Q = nC_p\Delta T$

$$\frac{\Delta W}{\Delta Q} = \frac{R}{C_p} = \frac{C_p - C_v}{C_p}$$

$$= 1 - \frac{C_v}{C_p} = 1 - \frac{3}{4} = 25\%$$

Correct Unattempted

Incorrect 4/10

Q : The difference between the molar specific heat at constant pressure and volume is called

A molar gas constant

B universal gas constant

C pressure constant

D Boltzman constant

Explanation

$C_p - C_v = R$

'R' is universal gas constant.

Correct

Unattempted

Incorrect

5/5c

Q : For mono-atomic gas $C_v = \frac{3R}{2}$, therefore γ for this gas is

A $\frac{3}{2}$

B $\frac{3}{5}$

C $\frac{5}{3}$

D $\frac{3}{4}$

Explanation

$C_p - C_V = R$

$C_p = R + C_V$

$= R + \frac{3R}{2}$

$C_p = \frac{5R}{2}$

$\gamma = \frac{C_p}{C_v} = \frac{5R}{2} \times \frac{2}{3R}$

$\gamma = \frac{5}{3}$

Correct | Unattempted

Incorrect | 6/10

Q : The unit of molar specific heat is same as that of

A Molar ideal gas constant

B Temperature

C Pressure

D Heat

Explanation

$C_p - C_v = R$ Only quantities having same dimensions be added

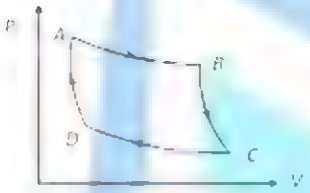
Correct

Unattempted

Incorrect

7/10

Q : The P-V graph of an ideal gas cycle is shown here as below. The adiabatic process is described by



A AB and BC

B AB and CD

C BC and DA

D BC and CD

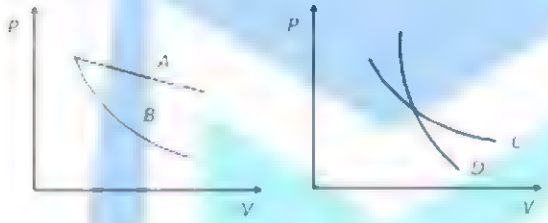
Explanation

AD and BC represent adiabatic process (more slope) AB and DC represent isothermal process (less slope)

Correct | Unattempted

Incorrect | 0 Pts

Q : n the following figure, four curves A, B, C and D are shown. The curves are



A Isothermal for A and D while adiabatic for B and C

B Adiabatic for A and C while isothermal for B and D

C Isothermal for A and B while adiabatic for C and D

D Isothermal for A and C while adiabatic for B and D

Explanation

- Adiabatic curves are more stepper than isothermal curves.

Correct

Unattempted

Incorrect

Q :

The specific heats at constant pressure is greater than that of the same gas at constant volume because

a. at constant pressure work is done in expanding the gas

b. at constant volume work is done in expanding the gas

c. the molecular attraction increases more at constant pressure

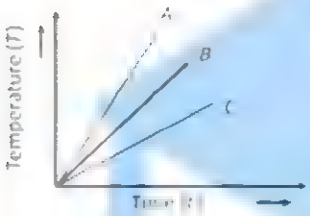
d. the molecular vibration increases more at constant pressure

Explanation

- Work done is to be done in expanding the gas at constant pressure.

Q :

Which of the substances A, B or C has the highest specific heat ? The temperature vs time graph is shown



A

B

C

All have equal specific heat

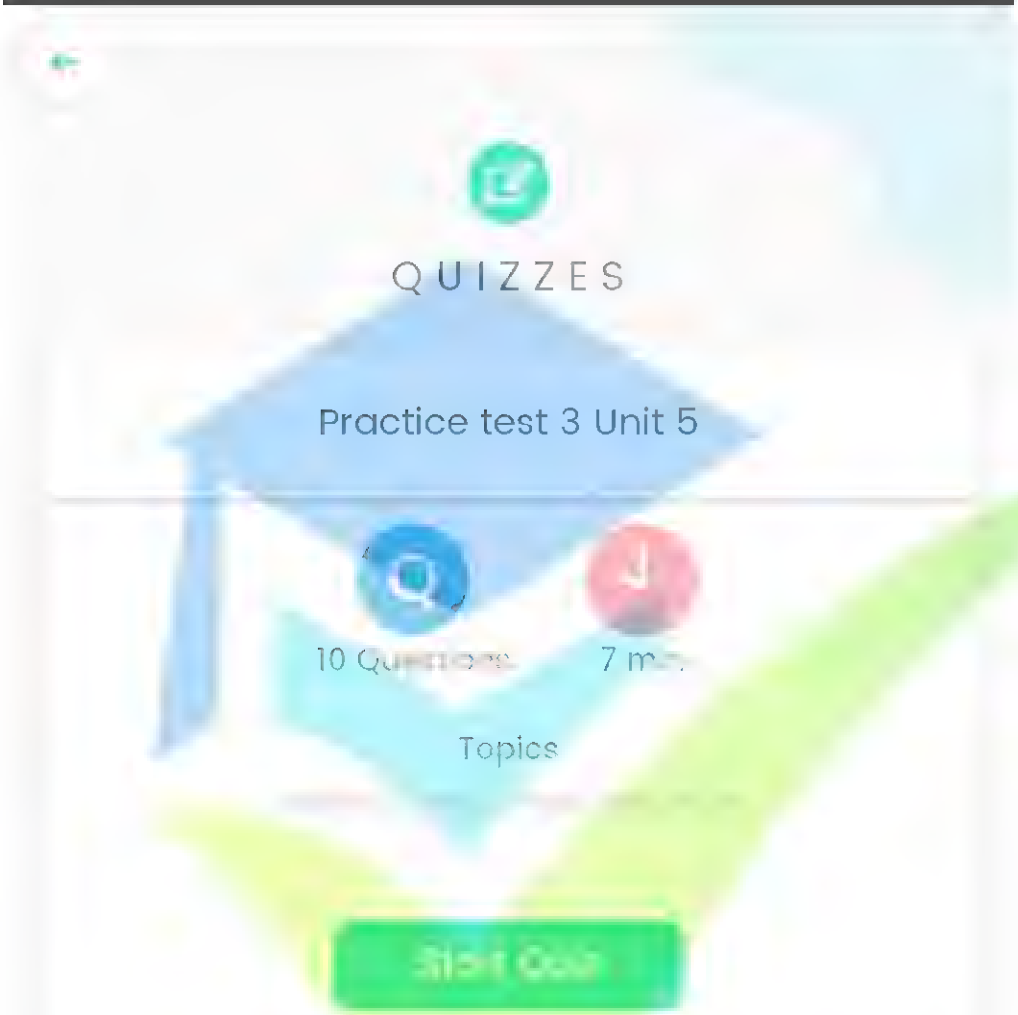
Explanation

Substances having more specific heat take longer time to get heated to a higher temperature and longer time to get cooled.

If we draw a line parallel to the time axis then it cuts the given graphs at three different points. Corresponding points on the times axis shows that

$t_C > t_B > t_A$

$C_C > C_B > C_A$



Q : The value of m mechanical equivalent of heat is (J) = _____

41.8 Joule per calorie

4.18 Joule per calorie

41.8 Joule caloric

4.18 Joule caloric

2/10 7 min Hint

Q : A thermos bottle containing hot coffee is vigorously shaken. Consider coffee as the system, then its temperature

A Increase

B Decreases below than 0°C

C Remains the same

D Decreases

Q : The internal energy of a monoatomic ideal gas is

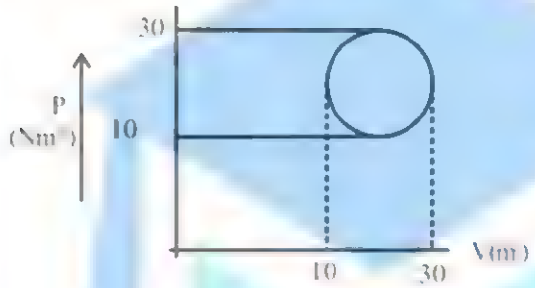
A only kinetic

B only potential

C partly kinetic and partly potential

D none of theses

Q : The work done by the system in going through cycle is



A $10^{7}\pi J$

B $10^{-3}\,J$

C 0

D $10^{2}\pi J$

5/10 7 min Next

Q : The temperature of a normal human body is 98.6^0F. This temperature on centigrade scale is

A 0^0C

B 37^0C

C 73^0C

D 37.6^0C

1 2 3 4 5 6 7 8 9

6/10 7 min Hint

Q : if two system X and Y are in thermal equilibrium. If X is heated at constant volume and Y is heated at constant pressure, and again finally maintained at thermal equilibrium, then heat Q given to the systems X and Y and internal energy U stored in the systems X and Y are

A $Q_x = Q_y$ and $U_x = U_y$

B $Q_x < Q_y$ and $U_x < U_y$

C $Q_x = Q_y$ and $U_x < U_y$

D $Q_x < Q_y$ and $U_x = U_y$

Q : The internal energy of a gram-molecule of an ideal gas depends upon

- Pressure alone
- Temperature alone
- Volume alone
- Both on pressure and temperature

Q : A gas is compressed from a volume of $2m^3$ to a volume of $1m^3$ at a constant pressure of $100N/m^2$.Then it is heated at constant volume by supplying 150 J of energy. As a result, the internal energy of the gas

A decreases by 250 J

B increases by 50 J

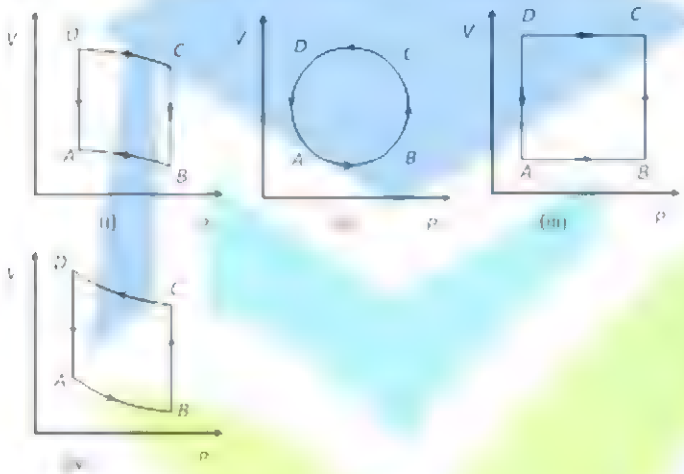
C increases by 250 J

D decreases by 50 J

06 : 39

9/10 7 min Hint

Q : In the diagrams (i) to (iv) of variation of volume with changing pressure is shown. A gas is taken along the path ABCD. The change in internal energy of the gas will be



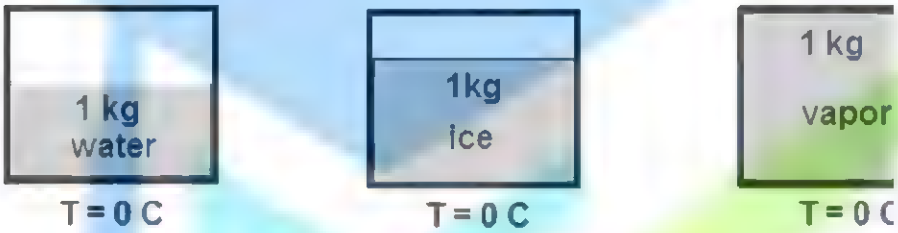
A Positive in all cases (i) to (iv)

B Positive in cases (i), (ii) and (iii) but zero in (iv) case

C Negative in cases (i), (ii) and (iii) but zero in (iv) case

D Zero in all four cases

Q : Three containers filled with 1 kg of each: water, ice, and water vapor at the same temperature T = 0° C. Which of the following is true about the internal energy of the substances?



- $U_{water} > U_{ice} > U_{vapor}$
- $U_{water} < U_{ice} > U_{vapor}$
- $U_{water} = U_{ice} = U_{vapor}$
- $U_{ice} < U_{water} < U_{vapor}$

Practice test 3 Unit 5

Correct

Unattempted

Incorrect

1/1a

Q : The value of m mechanical equivalent of heat is (J) = _____

A 41.8 Joule per calorie

B 4.18 Joule per calorie

C 41.8 Joule caloric

D 4.18 Joule caloric

Explanation

As 1 calorie = 4.18 Joule

1 2 3 4 5 6 7 8 9

Correct | Unattempted

Incorrect | 2/10

Q : A thermos bottle containing hot coffee is vigorously shaken. Consider coffee as the system, then its temperature

A Increase

B Decreases below than 0°C

C Remains the same

D Decreases

Explanation

By shaking kinetic energy of particles of coffee increase.

$K.E \propto T$

As so its temperature will also increase

← Practice test 3 Unit 5

Correct | Unattempted

Incorrect | 3/10

Q : The internal energy of a monoatomic ideal gas is

A only kinetic

B only potential

C partly kinetic and partly potential

D none of theses

Explanation

Gas molecules has only kinetic energy.

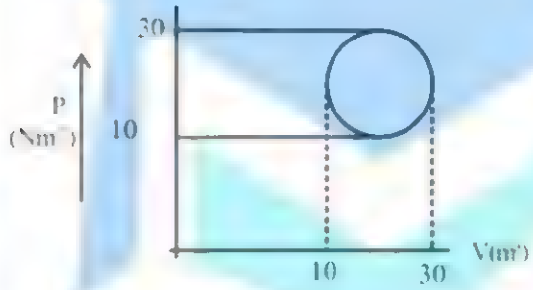
Correct

Unattempted

Incorrect

4/10

Q : The work done by the system in going through cycle is



A $10^{7}\pi J$

B $10^{-3}\ J$

C 0

D $10^{2}\pi J$

Explanation

Area of circle $= \pi r^2$

$W = \pi r^2$

$W = \pi \times 10^2 J$

Practice test 3 Unit 5

Correct Unattempted

Incorrect 5/10

Q : The temperature of a normal human body is 98.6^0F. This temperature on centigrade scale is

A 0^0C

C 37^0C

C 73^0C

D 37.6^0C

Explanation

$$\frac{98.6 - 32}{180} = \frac{C}{100}$$

$C = 37^o$

1 2 3 4 5 6 7 8 9

Correct

Unattempted

Incorrect

5/10

Q : if two system X and Y are in thermal equilibrium. If X is heated at constant volume and Y is heated at constant pressure, and again finally maintained at thermal equilibrium, then heat Q given to the systems X and Y and internal energy U stored in the systems X and Y are

A $Q_x = Q_y$ and $U_x = U_y$

B $Q_x < Q_y$ and $U_x < U_y$

C $Q_x = Q_y$ and $U_x < U_y$

D $Q_x < Q_y$ and $U_x = U_y$

Explanation

At constant volume no work is done and at constant pressure some heat is converted into work so $Q_x < Q_y$ $U_x = U_y$

Practice test 3 Unit 5

Correct

Unattempted

Incorrect

7/10

Q : The internal energy of a gram-molecule of an ideal gas depends upon

A Pressure alone

B Temperature alone

C Volume alone

D Both on pressure and temperature

Explanation

Internal energy is merely K.E because molecules do not exert force on each other except collision.

$I.E \propto \langle K.E \rangle \propto T$

Correct
Unattempted
Incorrect
Q No

Q : A gas is compressed from a volume of $2m^3$ to a volume of $1m^3$ at a constant pressure of $100N/m^2$.Then it is heated at constant volume by supplying 150 J of energy. As a result, the internal energy of the gas

A decreases by 250 J

B increases by 50 J

C increases by 250 J

D decreases by 50 J

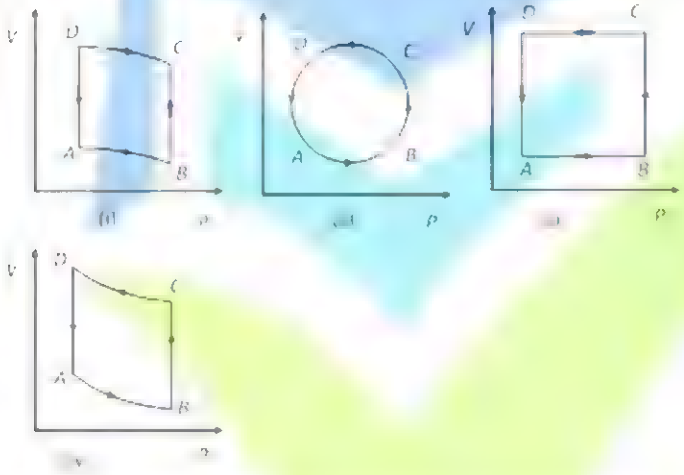
Explanation

As we know. $\Delta Q = \Delta u + \Delta w$(1st law of thermodynamic)
$\Rightarrow \Delta Q = \Delta u + P\Delta v$ or
$150 = \Delta u + 100(1 - 2) = \Delta u - 100 \therefore \Delta u = 150 + 100 = 250$
Thus the internal energy of the gas increase by 250J

Correct Unattempted

Incorrect 9/10

Q : In the diagrams (i) to (iv) of variation of volume with changing pressure is shown. A gas is taken along the path ABCD. The change in internal energy of the gas will be



A Positive in all cases (i) to (iv)

B Positive in cases (i), (ii) and (iii) but zero in (iv) case

C Negative in cases (i), (ii) and (iii) but zero in (iv) case

D Zero in all four cases

Explanation

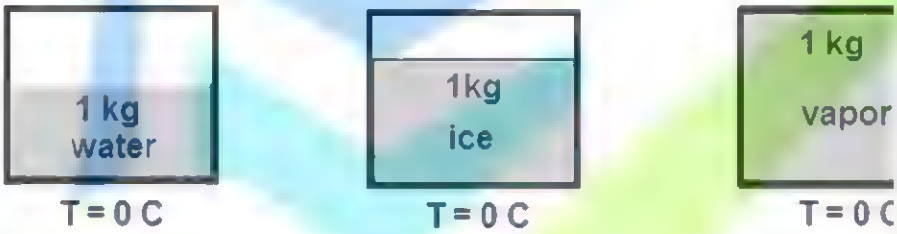
In all given cases, process is cyclic and in cyclic process DU = 0.

Correct

Unattempted

Incorrect

Q : Three containers filled with 1 kg of each: water, ice, and water vapor at the same temperature T = 0° C. Which of the following is true about the internal energy of the substances?



$U_{water} > U_{ice} > U_{vapor}$

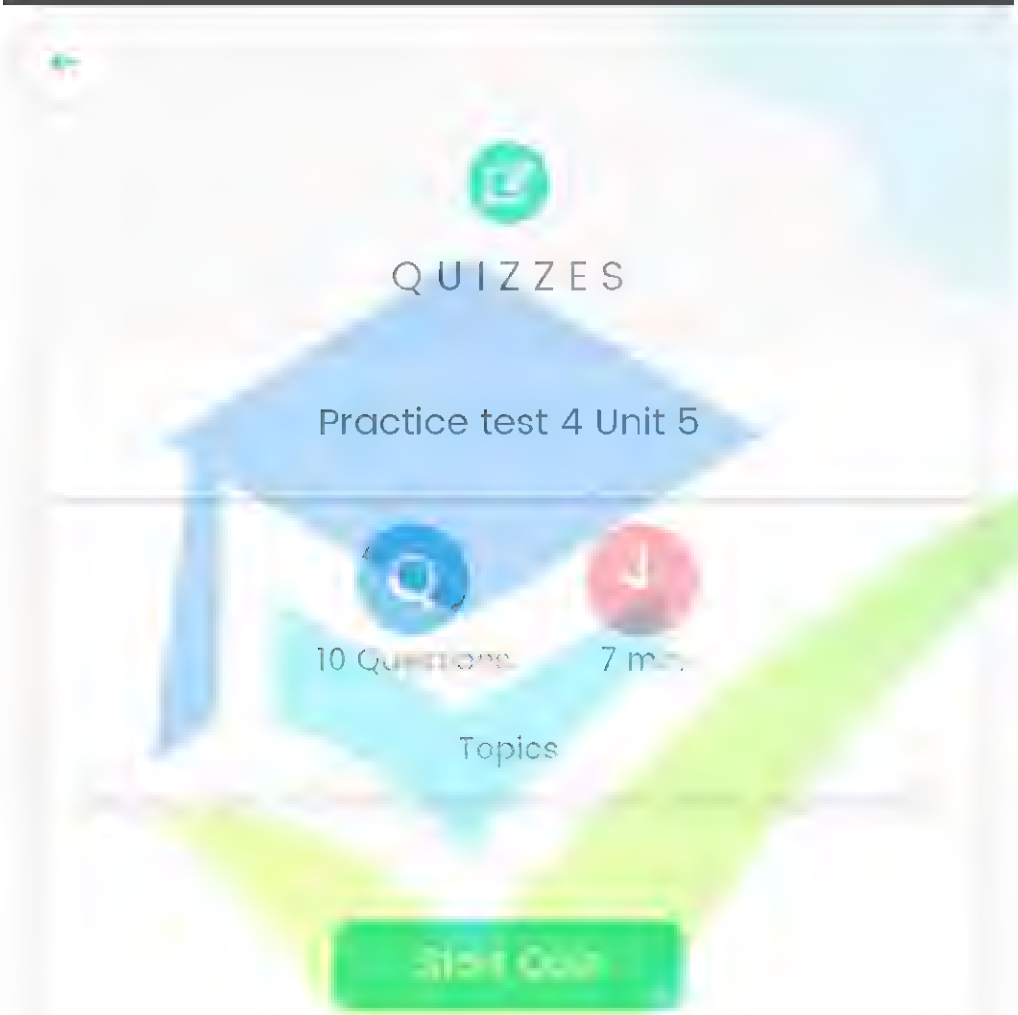
$U_{water} < U_{ice} > U_{vapor}$

$U_{water} = U_{ice} = U_{vapor}$

$U_{ice} < U_{water} < U_{vapor}$

Explanation

internal energy only depend upon temperature so vapour has more temperature than water and water has more temperature that ice



Q : The statement "it is impossible to device a process, which may convert heat, extracted from a single reservoir entirely into work" is given by:

A Lord Kelvin

B Joule

C Newton

D Pascal

2/10 7 min Next

Q : No heat engine can be more efficient than a carnot engine operating between the same two

- Pressure
- Carnot cycle
- Temperatures
- working substance

Q : Two ideal heat engines (A) and (B) have their sources at 600 K and 400 K and their sinks at 300 K and 250 K respectively. What can you say about their efficiency?

A is more than B

A is less than B

Both are equal efficient

The data given is not sufficient

4/10 7 min Hint

Q : If the temperature of the heat source is increased, the efficiency of a Carnot's engine

A Increases

B Decreases

C Remains constant

D First increases and then becomes constant

1 2 3 4 5 6 7 8 9

Q : A carnot engine has the same efficiency between (i) 100 K and 500 K and (ii) T and 900 K. Find T.

A 200 K

B 190 K

C 180 K

D none of these

Q : An ideal Carnot engine whose efficiency is 40% receives heat at 500K. If the efficiency is to be 50 % the intake temperature for the same exhaust temperature is

A 600 K

B 900 K

C 800 K

D 700 K

Q : The efficiency of heat engine is defined as

A $\eta = \frac{Output}{Input}$

B $\eta = \frac{Input}{Output}$

C $\eta = Output \cdot Input$

D $\eta = \frac{1}{Input \cdot Output}$

Q : On which factor the efficiency of Carnot engine depends upon

A temperature of sink

B temperature of source

C both A & B

D working substance

9/10 7 min Hint

Q : If the temperature of the sink is decreased then the efficiency of the Carnot engine

A decreases

B increases

C remain same

D zero

10/10 7 min Hint

Q : Heat cannot by itself flow from a body at lower temperature to a body at higher temperature? is a statement or consequence of

A Second law of thermodynamics

B Conservation of momentum

C Conservation of mass

D First law of thermodynamics

Practice test 4 Unit 5

Correct

Unattempted

Incorrect

Q : The statement "it is impossible to device a process, which may convert heat, extracted from a single reservoir entirely into work" is given by:

Lord Kelvin

Joule

Newton

Pascal

Explanation

This statement is given by lord kelvin

Practice test 4 Unit 5

Correct

Unattempted

Incorrect

Q : The statement "it is impossible to device a process, which may convert heat, extracted from a single reservoir entirely into work" is given by:

Lord Kelvin

Joule

Newton

Pascal

Explanation

This statement is given by lord kelvin

Practice test 4 Unit 5

Correct | Unattempted

Incorrect | 2/10

Q : No heat engine can be more efficient than a carnot engine operating between the same two

- Pressure
- Carnot cycle
- Temperatures
- working substance

Explanation

Carnot Theorem.

Correct Unattempted

Incorrect 3|10

Q : Two ideal heat engines (A) and (B) have their sources at 600 K and 400 K and their sinks at 300 K and 250 K respectively. What can you say about their efficiency?

A is more than B

A is less than B

Both are equal efficient

The data given is not sufficient

Explanation

$$\eta_A = 1 - \frac{T_2}{T_1} \qquad \eta_B = 1 - \frac{T_2}{T_1}$$

$$\eta_A = 1 - \frac{300}{600} \qquad \eta_B = 1 - \frac{250}{400}$$

$$\eta_A = 0.5 \qquad \eta_B = 0.37$$

$$\eta_A > \eta_B$$

← Practice test 4 Unit 5

Correct | Unattempted

Incorrect | 4/10

Q : If the temperature of the heat source is increased, the efficiency of a Carnot's engine

A Increases

B Decreases

C Remains constant

D First increases and then becomes constant

Explanation

$$\eta = 1 - \frac{T_2}{T_1}$$

it is clear that if temperature of hot reservoir "T_1" increase then "h" will also increase.

Correct
Unattempted
Incorrect
Skip

Q : A carnot engine has the same efficiency between (i) 100 K and 500 K and (ii) T and 900 K. Find T.

A 200 K

B 190 K

C 180 K

D none of these

Explanation

$$\eta = 1 - \frac{T_2}{T_1} = 1 - \frac{T_3}{T_4}$$

$$\frac{T_2}{T_1} = \frac{T_3}{T_4}$$

$$\frac{100}{500} = \frac{T_3}{900}$$

$$T_3 = \frac{100}{500} \times 900$$

$$= 20 \times 9$$

$$T_3 = 180K$$

temperature for the same exhaust temperature is

A 600 K

B 900 K

C 800 K

D 700 K

Explanation

$$\eta = 40\% = \frac{40}{100} = 0.4$$

$$T_1 = 500\ k$$

$$T_2 = ?$$

$$\eta = 1 - \frac{T_2}{T_1}$$

$$0.4 = 1 - \frac{T_2}{500}$$

$$\frac{T_2}{500} = 0.6$$

$$T_2 = \frac{0.6}{1} \times 500 = 300\ k$$

$$0.5 = 1 - \frac{300}{T_1}$$

$$\frac{300}{T_1} = 0.5$$

$$\frac{300}{0.5} = T_1$$

$$600k = T$$

Correct | Unattempted

Incorrect | 7/10

Q : The efficiency of heat engine is defined as

A $\eta = \frac{Output}{Input}$

B $\eta = \frac{Input}{Output}$

C $\eta = Output \times Input$

D $\eta = \frac{1}{Input \times Output}$

Explanation

$\eta = \frac{Output}{Input}$

Correct | Unattempted

Incorrect | 8/10

Q : On which factor the efficiency of Carnot engine depends upon

A temperature of sink

B temperature of source

C both A & B

D working substance

Explanation

$$\eta = 1 - \frac{T_2}{T_1}$$

$$\eta \propto T_1 T_2, \eta \propto \frac{1}{T_1}$$

Correct | Unattempted | Incorrect | 9/10

Q : If the temperature of the sink is decreased then the efficiency of the Carnot engine

A decreases

B increases

C remain same

D zero

Explanation

$$\eta = 1 - \frac{T_2}{T_1}$$

If T_2 is decreased then η will increased because we get large value in numerator.

Practice test 4 Unit 5

Correct | Unattempted

Incorrect | 10/10

Q : Heat cannot by itself flow from a body at lower temperature to a body at higher temperature? is a statement or consequence of

A Second law of thermodynamics

B Conservation of momentum

C Conservation of mass

D First law of thermodynamics